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ABSTRACT

This document contains the course syllabus and 12 independent practice modules for an introductory college algebra course designed to develop student proficiency in the basic algebraic skills. This course is designed as the first of a two-semester sequence. Topics include operations with signed numbers; simple operations on monomials and polynomials, including one technique of evaluating expressions; factoring; algebraic fractions; exponents; and basic review of arithmetic skills related to fractions, decimals, percents and percentages. Information given in this syllabus includes: (1) textbook; (2) grading criteria; (3) course description; (4) course procedures; (5) behavioral objectives; and (6) course outline. (CW)

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NEW YORK INSTITUTE OF TECHNOLOGY
CENTER FOR THE NATURAL SCIENCES
DEPARTMENT OF DEVELOPMENTAL MATHEMATICS

COURSE OUTLINE

MATH 3007 - DEVELOPMENTAL MATHEMATICS I - 4 equivalent credits/5 hours per week

TEXT: INTRODUCTORY ALGEBRA, 2nd Edition, Wright & New, Allyn and Bacon, Inc.

INSTRUCTOR:_____ OFFICE TELEPHONE:_____

OFFICE LOCATION:_____ OFFICE HOURS:_____

ED296899

GRADING CRITERIA:

Exams (3)	39%
Quizzes	13
Homework Modules	20
Final (departmental and comprehensive)	28
	100%

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COURSE DESCRIPTION:

The purpose of this course is to develop student proficiency in the basic algebraic skills. The topics to be covered include the operations on signed numbers, simple operations on monomials and polynomials, including one technique of evaluating expressions, factoring, algebraic fractions and exponents. Also included is a review of arithmetic skills as related to fractions, decimals, percents and percentages. This is the first course of a two semester sequence and must be followed by 3008.

COURSE PROCEDURES:

The curriculum is broken into twelve modules, each of approximately one week's length. At the end of each module, the student completes a set of exercises relating to the topic(s) covered. The student is urged to use both his class notes and the worked examples in the text as references. Three classroom tests are to be administered - upon completion of the fourth, eighth and twelfth weeks of study. Also, in the weeks with no exam, periodic quizzes may be given. Through the implementation of the exams, quizzes and modules, the student will receive frequent feedback regarding his or her progress.

BEHAVIORAL OBJECTIVES:

An attitude that encourages academic progress in mathematics by utilizing one's maximum learning potential.

ATTENDANCE:

Full attendance is required. For medical and other problems, one week of absence will be permitted.

MAKE-UP EXAMINATIONS:

All make-ups are to be taken within one week after the test date.

SMOKING AND EATING:

Neither will be permitted in the classroom.

Rev. 6/87

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NEW YORK INSTITUTE OF TECHNOLOGY

DEPARTMENT OF DEVELOPMENTAL MATHEMATICS

COURSE OUTLINE

MATH 3007 - DEVELOPMENTAL MATHEMATICS I

TEXT: INTRODUCTORY ALGEBRA, 2nd Edition
Franklin Wright and Bill New, Allyn and Bacon, Inc., 1986

WEEK	SECTION	TOPIC
1	1.1	Operations with whole numbers
	1.2	Exponents and order of operations
2	1.3-1.4	Operations with fractions
	Supp.(1)	Operations with mixed numbers
	1.6	Word problems (uses fundamental operations only)
3	2.1	Number lines (include distance from origin)
	2.3-2.5	Operations with signed numbers
4	2.6	Word problems (uses signed numbers only)
	1.7-1.8	Variables and solutions to equations; use of formulas (to be supplied)
5	3.1	Simplifying and evaluating expressions
	3.2-3.4	Solving equations (include parentheses p.123)
6	1.5	Decimals and percent
	Supp.(2)	Division with decimals
	Supp.(3)	Conversion from fractions to decimals and from decimals to percent
7	Supp.(4)	Percent problems
	3.5	Writing algebraic expressions
8	3.6	Word problems (uses algebra)
	3.7	Solving for any term in a formula
9	4.1-4.2	Exponents and scientific notation
10	4.3-4.4	Operations with polynomials (no division)
11	4.5	Special products of binomials
12	6.1	Division with polynomials

3007 - Module 1

1. 23 + 19 + 8 + 16

   a) 67 b) 66 c) 56 d) 76 e) 46

2. 239 - 38 - 21 + 2

   a) 282 b) 128 c) 281 d) 181 e) 182

3. (4)(6)(33)

   a) 57 b) 3,168 c) 792 d) 144 e) 330

4. 405 ÷ 15

   a) -27 b) 25 c) 27 d) 20 e) -25

5. 9 (6 + 4)

   a) 94 b) 108 c) 42 d) 58 e) 90

6. 12 (5 - 3)

   a) 57 b) 24 c) 31 d) 26 e) 53

7. 3 (6) (4) ÷ 6 + 3 (2)

   a) -18 b) 12 c) 18 d) - 12 e) 6

8. 1335 + 120 - 168 - 4

   a) 1200 b) 1283 c) 128 d) 1300 e) 1900

9. (33 - 3) + 10 ÷ 5

   a) 18 b) -32 c) 32 d) 16 e) -16

10. (3) (5) - (2) (6)

    a) 78 b) -78 c) 21 d) -3 e) 3

11. 18 ÷ (3) (6) -3

    a) 2 b) -2 c) 33 d) -31 e) 30

12. $(4^2 + 6) \div 11 - 1\ (2)$

    a) 8 b) -2 4/9 c) 2 2/9 d) 0 e) 2 4/9

13. 6 + 3 [4 - 2 (3 - 1)]

    a) 6 b) 18 c) -6 d) -18 e) 12

14. $3^3 \div 9 + (6 + 4^2) \div 2$

a) 16 b) 21 c) -14 d) 14 e) 23

15. $4\ [5^2 - (6 + 5 \cdot 3) \div 7]$

a) 81 b) 71 c) -88 d) 88 e) 78

FIND THE LCM FOR PROBLEMS 16-20

16. 20, 14

a) 70 b) 140 c) 120 d) 280 e) 240

17. 49, 25, 35

a) 245 b) 175 c) 1225 d) 1325 e) 115

18. x, xy, x

a) xy b) x^2y c) x^3y d) x^3 e) y

19. 8x, 10y, 20xy

a) $40xy^2$ b) 64xy c) 40xy d) $64x^3y$ e) $40x^2y$

20. $16x^2$, 24xy, $40x^2y^2$

a) 120x4y2 b) 960xy c) $420x^2y^2$ d) $240x^2y^2$ e) $210x^2y^2$

3007 - Module 2

REDUCE AND SIMPLIFY EACH EXPRESSION IN EXERCISES 1-16 TO LOWEST TERMS.

1. 30/42

   a) 5/7 b) 6/11 c) 4/7 d) 3/5 e) 2/5

2. 120/150

   a) 3/7 b) 2/5 c) 4/7 d) 4/5 e) 3/5

3. (36/65) · (75/90)

   a) 12/26 b) 6/13 c) 13/6 d) 3/5 e) 9/28

4. 40/9 ÷ 2/15

   a) 25/3 b) 50/3 c) 100/3 d) 18/5 e) 26/11

5. (2) (1 2/5) ÷ (7/12)

   a) 49/30 b) 18/11 c) 22/25 d) undefined e) 4 4/5

6. (2 2/3) (18/5) · (5/4)

   a) 6 b) 3/4 c) 12 d) 4/3 e) 5

7. $\frac{4}{13} \div 0$

   a) 0 b) $\frac{1}{13}$ c) .3 d) undefined e) 4

8. $0 \div \frac{5}{9}$

   a) undefined b) 0 c) 2.5 d) $\frac{5}{9}$ e) 1 4/5

9. 2x/5 ÷ 2x/5

   a) $4x^2/25$ b) 4x/25 c) 1/5 d) 1 e) 0

10. $13/6x \div 2/5 \cdot \frac{3x}{25}$

    a) 13/20 b) 13/105 c) 6/105 d) 105/13 e) 20/13

11. 7/12 + 8/15

    a) 15/27 b) 18/21 c) 43/60 d) 55/60 e) 67/60

12. 6/17 - 5/17

    a) -1/17 b) 1/17 c) 12/17 d) 1 e) -1

13. 8/35 + 6/10 - 5/14

a) -33/70 b) 83/70 c) -83/70 d) 23/70 e) 33/70

14. 1/2 (3/4 + 1/6) + 2/3

a) 6/5 b) 7/6 c) 5/4 d) 9/8 e) 7/4

15. 3/4 ÷ 3/16 - 2/3 · 3/4

a) 2/7 b) - 7/2 c) 7/2 d) - 2/7 e) 2

16. (2/3 - 1/5) ÷ (5/7 - 1/3)

a) 7/8 b) 147/40 c) -49/40 d) 56/315 e) 49/40

17. MULTIPLY THE QUOTIENT OF 19/2 AND 13/4 BY 13/12

a) 6/5 b) 19/6 c) 6/19 d) 26/57 e) 3/2

18. HOW MUCH SPACE ON A SHELF WILL JOHN NEED TO HOLD 3 BOOKS 3/4" THICK AND 4 BOOKS 7/8" THICK?

a) 21/4" b) 21/8" c) 21/32" d) 33/4" e) 23/4"

19. DIVIDE THE SUM OF $\frac{3}{5}$ AND $\frac{5}{8}$ BY $\frac{7}{4}$

a) 23/56 b) 67/70 c) 343/160 d) 7/10 e) 17/70

20. TO BUY A USED CAR, YOU CAN PAY $3250 CASH OR YOU CAN PUT DOWN $800 AND MAKE 24 MONTHLY PAYMENTS OF $131.50. HOW MUCH CAN YOU SAVE BY PAYING CASH?

a) $660 b) $606 c) $700 d) $706 e) $760

3007 - Module 3

SELECT THE ANSWER THAT FOLLOWS CORRECTLY FROM EACH EXERCISE 1 - 5.

1. $1/3 __ 1/2$

   a) $1/3 = 1/2$ b) $1/3 < 1/2$ c) $1/3 > 1/2$ d) $1/3 \geq 1/2$ e) $1/3 \leq 1/2$

2. $-8 __ 0$

   a) $-8 = 0$ b) $-8 > 0$ c) $-8 < 0$ d) $-8 \geq 0$ e) $-8 \leq 0$

3. $-2 \ -3 __ 5$

   a) $-5 < 5$ b) $6 > 5$ c) $5 = 5$ d) $-6 > 5$ e) $-6 < 5$

4. $2 \ -6 __ -3 \ -4$

   a) $-12 < 7$ b) $4 > -17$ c) $8 > 7$ d) $-4 > -7$ e) $-4 < -7$

5. $-4 \ -3 __ -2-(-2)$

   a) $7 > 0$ b) $7 > 4$ c) $-7 < -4$ d) $-12 > 0$ e) $-7 < 0$

6. $213 + 21 \ -37 - 2$

   a) 230 b) 234 c) 195 d) 285 e) 185

7. $-\ 4\ 2/3 + (-\ 5\ 1/6)$

   a) $9\ 5/6$ b) $58/6$ c) $8\ 5/6$ d) $-9\ 5/6$ e) $-8\ 5/6$

8. $4/3 - 1/4 - 5/6$

   a) $-29/4$ b) $-1/3$ c) -14 d) $29/4$ e) $1/4$

EVALUATE THE FOLLOWING:

9. $x + 6, \ x = 2$

   a) 8 b) -8 c) 6 d) 2 e) -2

10. $12 - 3x, \ x = -2$

    a) -18 b) 12 c) -12 d) 18 e) 9

11. $2y + 4 + 4y, \ y = 3$

    a) 18 b) 12 c) 22 d) -10 e) -16

12. $4x + 6, \ x = -3$

    a) 6 b) -6 c) -1 d) 18 e) -4

13. $x + 3/4,\ x = -1$

a) 1 b) -1 c) -7/4 d) -1/4 e) 7/4

14. $-3 - (-3) + (-6)$

a) 18 b) 12 c) 6 d) -6 e) -12

15. $-2/3 + 4/5 - (-1/2)$

a) -19/30 b) 19/30 c) 1 d) 17/30 e) - 17/30

16. $(-7) \cdot (-16) \cdot 0$

a) 112 b) -112 c) 28 d) 42 e) 0

17. $(-1/2) \div (-7/8)$

a) 4/7 b) -7/16 c) -7/4 d) -4/7 e) 16/7

18. $(-6)(-3)(-9)$

a) 121 b) -162 c) 154 d) -154 e) 162

19. $19(-4) \div 4$

a) 20 b) 36 c) 19 d) -19 e) 190

20. $\dfrac{4 + (3 - 3)}{2(3 - 3)}$

a) 2 b) 0 c) 4 d) 7/2 e) undefined

3007 - Module 4

1. BEGINNING WITH 7° ABOVE ZERO, THE TEMPERATURE ROSE 4°, THEN DROPPED 2°, AND THEN DROPPED 6°. FIND THE FINAL TEMPERATURE.

   a) 5° b) 6° c) 3° d) 4° e) 2°

2. FROM THE SUM OF -4 AND -17, SUBTRACT THE SUM OF -12 AND 6.

   a) -27 b) -15 c) 15 d) 27 e) 14

3. MR. ADAMS RECEIVED A BANK STATEMENT INDICATING THAT HE WAS OVERDRAWN BY $63. HOW MUCH MUST HE DEPOSIT TO BRING HIS BALANCE TO $157?

   a) $94 b) $160 c) $163 d) $63 e) $220

4. IF YOU TRAVEL FROM THE TOP OF MT. WHITNEY, ELEVATION 14,495 FT TO THE FLOOR OF DEATH VALLEY, ELEVATION 282 FT BELOW SEA LEVEL, WHAT IS THE CHANGE IN ELEVATION?

   a) 14,777 ft. b) 14,213 ft. c) -14,213 ft. d) 13,777 ft. e) 14,313 ft.

5. ON MONDAY, ALPHA CORP. STOCK OPENED AT 29 3/8 AND CLOSED AT 31 1/4. WHAT WAS THE CHANGE IN THE PRICE?

   a) 2 b) 1 7/8 c) 1 3/8 d) 2 3/8 e) 2 7/8

EVALUATE THE FOLLOWING PROBLEMS 6 - 12

6. $3y + 1 : y = 0$

   a) 4 b) 2 c) 1 d) 0 e) e

7. $10 - 2x : x = 2$

   a) 14 b) 8 c) -6 d) -8 e) 6

8. $4x + x + 2, x = -1$

   a) -3 b) 2 c) 3 d) -2 e) 4

9. $3y^2 - 2y + 5, x = 1$

   a) 7 b) -6 c) 5 d) 6 e) -5

10. $7 - 2x + x, x = 3$

    a) 4 b) 3 c) -3 d) -6 e) 2

11. $5x + 4 - 2x, x = -2$

    a) 1 b) -2 c) -1 d) 2 e) 3

12. $-x + 3 - 4x,\ x = 0$

a) 1 b) -1 c) -3 d) 3 e) 1

13. THE PERIMETER OF A RECTANGLE WITH A LENGTH OF 15 INCHES AND A WIDTH OF 20 INCHES IS _____ INCHES.

a) 70 b) 60 c) 75 d) 55 e) 65

14. THE AREA OF THE RECTANGLE IN PROBLEM #13 IS _____ SQUARE INCHES.

a) 250 b) 280 c) 150 d) 320 e) 300

15. THE CIRCUMFERENCE OF A CIRCLE WITH A RADIUS OF 3 CENTIMETERS IS _____ CENTIMETERS.

a) 9.42 b) 18.84 c) 28.26 d) 18.47 e) 19.23

16. THE AREA OF THE CIRCLE IN PROBLEM #15 IS _____ SQUARE CENTIMETERS.

a) 9.42 b) 28.26 c) 18.84 d) 18.47 e) 19.23

17. THE AREA OF A TRIANGLE WITH A HEIGHT OF 3 FEET AND A BASE OF 4 FEET IS _____ SQUARE FEET.

a) 3 b) 4 c) 6 d) 8 e) 12

18. THE AREA OF A PARALLELOGRAM WITH A HEIGHT OF 2 METERS AND A BASE OF 10 METERS IS _____ SQUARE METERS.

a) 2 b) 4 c) 15 d) 10 e) 20

19. THE VOLUME OF A SPHERE WITH A RADIUS OF 5 FEET IS _____ CUBIC FEET.

a) 480 b) 523 c) 325 d) 820 e) 565

20. THE VOLUME OF A RECTANGULAR PYRAMID WITH A LENGTH OF 2 FEET, A WIDTH OF 1.5 FEET AND A HEIGHT OF 4 FEET IS _____ CUBIC FEET.

a) 2 b) 4 c) 3 d) 5 e) 8

3007 - Module 5

SIMPLIFY BY COMBINING LIKE TERMS:

1. $4abc - 3a^2b^2 + 4a^2b^2 - abc$

   a) $4abc + a^2b^2$ b) $4a^3b^3c$ c) $3abc + a^2b^2$ d) $5abc + 7a^2b^2$ e) $3abc - a^2b^2$

2. $5x^3 + 3x^2 - x^3 + 3x + 5 + x^2 - 9$

   a) $4x^3 + 3x^2 + 3x - 4$ b) $5x^3 + 4x^2 + 3x - 4$ c) $4x^3 + 4x^2 - 4$
   d) $4x^3 + 4x^2 + 3x - 4$ e) $5x^3 + 4x^2 - 4$

REMOVE PARENTHESES AND SIMPLIFY:

3. $x^2 (y - 2) + 2y (x^2 - x)$

   a) $2x^2y - xy - 2x^2$ b) $2x^2y - 3x^2 - 2xy$ c) $x^2y - 2x^2 + xy^2$
   d) $3x^2y + 2x^2 + 2xy$ e) $3x^2y - 2x^2 - 2xy$

4. $4x - 3y + 2 (x + 2y)$

   a) $6x - 5y$ b) $6x + y$ c) $6x - y$ d) $2x + 5y$ e) $-2x - 5y$

5. $4 (2x + 5) - 3 (2 - 7x)$

   a) $29x - 14$ b) $-12x + 4$ c) $29x + 14$ d) $29x + 4$ e) $29x - 4$

EVALUATE THE FOLLOWING:

6. $4xyz$; $x = 2$, $y = 3$ and $z = -4$

   a) -20 b) 20 c) 13 d) 5 e) -96

7. $\frac{a^2 - b + c}{5c}$; $a = 0$, $b = -2$, $c = 4$

   a) 3/10 b) 1/10 c) - 1/10 d) - 3/10 e) 3/20

8. $a^2 - 4a - 2$; $a = -3$

   a) 1 b -23 c) -5 d) 19 e) 4

SOLVE THE EQUATIONS FOR X

9. $\frac{2x}{5} = 15$

   a) 3 b) 6 c) 1 1/2 d) 7 1/2 e) 37 1/2

10. $x + \frac{3}{8} = \frac{5}{16}$

   a) 1/16 b) -1/16 c) 1/4 d) -1/4 e) 11/16

11. $6x - 2 + 3x = 4x + 8 + 4x$

a) -10 b) 8 c) 10 d) 6 e) 12

12. $4x - 7x = 42$

a) -14 b) 14 c) 3 d) -2 e) 21

13. $\frac{5}{6}y = 17 + 23$

a) -48 b) 8 c) 48 d) -8 e) 23

14. $3(y + 2) = 5(y - 2)$

a) -2 b) 6 c) 8 d) 2 e) 4

15. $5(t - 2) = 7(t + 1) + 1$

a) 9 b) 1 c) -6 d) -5 e) -9

16. $8(3x + 5) - 9 = 9(x - 2) + 14$

a) 7/3 b) 3/7 c) -3/7 d) -7/3 e) 2

17. $9x - 4(x - 4) = 3(x + 2)$

a) -5 b) -3 c) 3 d) 11 e) 9

18. $\frac{2}{5}x - 2 = x + 4$

a) 6 b) - 1/10 c) -2 d) 14 e) - 10

19. FIND THE COST OF AN ITEM IF THE PROFIT IS $93.25 AND THE REVENUE IS $865.90.

a) $773.75 b) $772.65 c) $762.65 d) $959.15 e) $772.55

20. EIGHTY-EIGHT YARDS OF FENCING IS NEEDED TO ENCLOSE A SWIMMING POOL SITE. IF THE SITE IS 18 YARDS WIDE, FIND THE LENGTH.

a) 35 yds. b) 26 yds. c) 13 yds. d) 52 yds. e) 17 1/2 yds.

3007 - Module 6

CONVERT THE DECIMALS IN #1 AND #2 TO FRACTIONS OR MIXED NUMBERS.

1. .36

a) $\frac{-9}{20}$ b) $\frac{9}{25}$ c) $\frac{9}{20}$ d) $\frac{-9}{25}$ e) $\frac{7}{25}$

2. 4.215

a) $4\frac{43}{200}$ b) $44\frac{7}{200}$ c) $4\frac{47}{200}$ d) $4\frac{49}{200}$ e) $4\frac{39}{200}$

3. WRITE 1.25 AS A PERCENT.

a) 125% b) 12.5% c) 1.25% d) .125% e) .0125%

4. WRITE 47% AS A DECIMAL.

a) 4.7 b) 0.47 c) 0.047 d) 0.4 e) 0.0047

5. WRITE 15% AS A FRACTION.

a) $\frac{15}{20}$ b) $\frac{13}{100}$ c) $\frac{1}{10}$ d) $\frac{3}{20}$ e) $\frac{7}{5}$

6. WRITE THE MIXED NUMBER $4\frac{7}{8}$ AS A PERCENT.

a) 4.875% b) 487.5% c) 48.75% d) 490% e) 0.4875%

7. CHANGE $2\frac{5}{7}$ TO DECIMAL FORM AND ROUND OFF TO NEAREST HUNDREDTH.

a) 27.1 b) 2.72 c) 2.714 d) 2.71 e) 27.14

8. WHAT IS 36% OF 98?

a) 421 b) 3.53 c) 353 d) 42.12 e) 35.28

9. 17 IS WHAT PERCENT OF 85?

a) 2% b) .2% c) 20% d) 5% e) 500%

10. FIND 300% OF 9.

a) 2700 b) 270 c) 2.7 d) 0.27 e) 27

11. 24 IS 15% OF WHAT NUMBER?

a) 3.6 b) 160 c) 16 d) 184 e) 1600

PERFORM THE INDICATED OPERATIONS.

12. 1 1/2 ÷ .75

a) 9/8 b) 4/3 c) 3/4 d) -2 e) 2

13. 4 2/5 - (3.5) (3 1/7)

a) 11/5 b) 32/5 c) 20/35 d) -33/5 e) -11/5

14. 3/2 - 1 2/3 + .25

a) 1/4 b) 3/4 c) 1/12 d) 5/12 e) 11/12

15. 180 ÷ 1.2

a) 150 b) 1.5 c) 0.15 d) 15 e) 0.015

FOR PROBLEMS 16 THROUGH 19, WRITE ANSWERS TO NEAREST TENTH.

16. 0.01 + 3.2 + 0.223 + 5.7

a) 11.2 b) 0.1 c) 9.2 d) 9.1 e) 91.3

17. 12.0 ÷ 0.2 - 1.13 + 3.2

a) 8.1 b) 62.1 c) 602.1 d) 55.7 e) 4.5

18. 22.3 + 122.45 - 2.3 [2.03 - 0.04]

a) 130.0 b) 140.2 c) 140.1 d) 137.9 e) 130.2

19. (1.1) (2.0) - 1.1 + 22.22

a) 23.3 b) 43.1 c) 21.1 d) 21.3 e) 23.2

20. SOLVE: 1.4x - 0.9x + 0.7 = - 2.2

a) -3 b) 3 c) -5.8 d) -1.5 e) 5.8

1. DURING A 42-DAY QUARTER A STUDENT WAS ABSENT 7 TIMES. WHAT PERCENT OF THE TIME WAS HE ABSENT?

   a) 600% b) 16% c) 16 2/3% d) 6% e) 60%

2. A REAL ESTATE BROKER COLLECTED A 6.5% FEE ON A HOUSE WHICH SOLD FOR $237,500. HOW MUCH DID THE BROKER COLLECT?

   a) $154,375.00 b) $222,062.50 c) $83,125.00 d) $252,937.50 e) $15,437.50

3. TWO-SEVENTHS OF THE CLASS FAILED THE LAST TEST. FIND, TO THE NEAREST TENTH OF A PERCENT, THE PERCENT OF THE CLASS WHICH PASSED.

   a) 28.6% b) 71.4% c) 2.9% d) 7.1% e) 35%

4. BEEF PRICES HAVE INCREASED 32% WITHIN THE PAST FOUR YEARS. WHAT IS THE PRESENT COST OF A POUND OF BEEF WHICH COST $1.98 PER POUND FOUR YEARS AGO?

   a) $2.61 b) $0.63 c) $1.35 d) $2.04 e) none of these

5. JOAN ATTEMPTED 50 FREE THROWS AND MADE 87.5% OF THEM. HOW MANY FREE THROWS DID SHE MAKE? (ROUND OFF TO THE NEAREST WHOLE NUMBER.)

   a) 6 b) 4 c) 45 d) 44 e) 46

6. THE EVENING ENROLLMENT AT A CERTAIN COLLEGE IS 6% LESS THAN THE DAY ENROLLMENT. IF THE DAY ENROLLMENT IS 2450, FIND THE EVENING ENROLLMENT.

   a) 147 b) 2303 c) 2597 d) 157 e) 297

7. A BASEBALL PLAYER IS BATTING 45% HITS. IF HE GOT 18 HITS, HOW MANY TIMES WAS HE AT BAT?

   a) 40 b) 80 c) 60 d) 45 e) 55

8. ROCHELLE EARNS $1,850 A MONTH. IF SHE IS GIVEN A 12% RAISE, WHAT WILL HER SALARY BE AFTER THE RAISE?

   a) $2,220 b) $2,628 c) $2,072 d) $3,478 e) $1,872.20

9. A WOMAN SPENDS 15% OF HER MONTHLY INCOME ON FOOD, 19% ON RENT AND 12% ON CLOTHES IF SHE EARNS $1980 PER MONTH, WHAT IS THE TOTAL AMOUNT SPENT ON THESE ITEMS?

   a) $1069.20 b) $712.80 c) $91.08 d) $910.80 e) $1108.80

WRITE THE ALGEBRAIC EXPRESSION DESCRIBED BY EACH OF THE PHRASES.

10. THE QUOTIENT OF A NUMBER AND EIGHT

    a) $\frac{8}{x}$ b) $8x$ c) $x - 8$ d) $\frac{x}{8}$ e) $8 + x$

11. A NUMBER DECREASED BY TWELVE

a) $\frac{12}{x}$ b) $x - 12$ c) $\frac{x}{12}$ d) $12 - x$ e) $x + 12$

12. THREE TIMES THE SUM OF A NUMBER AND FOUR

a) $4 (x + 3)$ b) $3 (4x)$ c) $3x + 4)$ d) $3 (x - 4)$ e) $3 (x + 4)$

13. FIVE LESS TWICE A NUMBER

a) $5 - 2x$ b) $\frac{2x}{5}$ c) $5 (2x)$ d) $2x - 5$ e) $\frac{5}{2x}$

14. THREE MORE THAN ONE-HALF A NUMBER

a) $\frac{x + 3}{2}$ b) $3 (1/2x)$ c) $\frac{x}{2} \div 3$ d) $\frac{x}{2} + 3$ e) $3 + \frac{2}{x}$

15. EXPRESS EACH UNKNOWN IN TERMS OF THE SAME VARIABLE

IF THE SUM OF TWO NUMBERS IS 30 AND x = THE FIRST NUMBER, HOW WOULD YOU REPRESENT THE SECOND NUMBER?

a) it can not be represented b) $x - 30$ c) $30 - x$ d) $\frac{30}{x}$ e) $30 + x$

16. GEORGE BUILDS MODEL AIRPLANES AND SELLS THEM TO MAKE EXTRA MONEY. THE COST FOR MAKING ONE PLANE IS $x AND HE HAS FIXED COSTS OF $30 A MONTH. HOW WOULD YOU REPRESENT HIS COSTS IN A MONTH THAT HE MADE 12 PLANES?

a) $12x + 30$ b) $12 (x + 30)$ c) $12 (30) + x$ d) $12x - 30$ e) it cannot be represented

17. A CLASS CONTAINS x STUDENTS. IF TWO-FIFTHS OF THE STUDENTS ARE WOMEN, REPRESENT THE NUMBER OF MEN IN THE CLASS.

a) $\frac{2}{5}x$ b) $\frac{3}{5}x$ c) $x - \frac{2}{5}$ d) $x - \frac{3}{5}$ e) $\frac{\frac{x}{2}}{5}$

18. REPRESENT THE PERIMETER OF A RECTANGLE IF THE LENGTH IS ℓ METERS AND THE WIDTH IS FOUR METERS LESS THAN THE LENGTH.

a) $\ell (\ell - 4)$ b) $\ell + (\ell - 4)$ c) $2\ell + 2 (4 - \ell)$ d) $2\ell + 2 (\ell - 4)$

e) $2\ell [2(\ell - 4)]$

19. THE FIRST OF TWO NUMBERS IS TEN MORE THAN THE OTHER. HOW WOULD YOU REPRESENT THEIR SUM?

a) $2x + 10$ b) $2 (x + 10)$ c) $(x + 10) - x$ d) $x - (10 + x)$ e) $(x + 10) x$

20. ERNIE LEAVES HIS HOUSE AT 10:00am ON A BIKE. THREE HOURS LATER, JERRY LEAVES ERNIE'S HOUSE IN A CAR. HOW WOULD YOU REPRESENT THE NUMBER OF HOURS ERNIE HAS TRAVELED WHEN, IN X HOURS, JERRY CATCHES UP?

a) $3 - x$ b) $x - 3$ c) $x + 3$ d) $3x$ e) it can not be represented

3007 - Module 8

USE EQUATIONS TO SOLVE THE FOLLOWING WORD PROBLEMS.

1. THREE FOURTHS OF WHAT NUMBER IS 12?

   a) 9 b) 3 c) 4 d) 16 e) 20

2. IF EIGHT IS ADDED TO 1/7 OF A NUMBER, THE RESULT IS 14. WHAT IS THIS NUMBER?

   a) 10 b) $\frac{22}{7}$ c) $\frac{6}{7}$ d) 154 e) 42

3. THE SUM OF 1/3 OF A NUMBER AND 1/2 OF THE NUMBER IS 10. FIND THE NUMBER.

   a) 25 b) 16 c) 14 d) 12 e) 2

4. THE CURRENT VALUE OF A BUSINESS MACHINE IS $100 LESS THAN ONE-HALF OF ITS COST. IF IT IS WORTH $450 TODAY, WHAT WAS ITS COST?

   a) $1,000 b) $1,100 c) $800 d) $700 e) $1,200

5. PETE HAS $53 LESS THAN ANN AND TOGETHER THEY HAVE $97. HOW MUCH MONEY DOES ANN HAVE?

   a) $82 b) $44 c) $64 d) $80 e) $75

6. FIVE FEET MORE THAN TWICE THE LENGTH OF A RECTANGLE IS 33. FIND THE LENGTH OF THE RECTANGLE.

   a) 22 b) 19 c) 16 d) 14 e) 28

7. A BACK-PACK WAS ON SALE FOR 20% OFF THE ORIGINAL PRICE. IF YOU PAID $36 FOR THE PACK, WHAT WAS THE ORIGINAL PRICE?

   a) $7.20 b) $43.20 c) $45.00 d) $28.80 e) $180.00

8. THE COST OF RENTING A CAR IS $18 PER DAY PLUS 16 CENTS PER MILE. FIND THE COST OF RENTING A CAR FOR A THREE-DAY TRIP OF 1,000 MILES.

   a) $70 b) $214 c) $160 d) $54 e) $178

9. A HOUSE AND LOT COST $260,000. IF THE LOT COST $50,000 LESS THAN THE HOUSE, HOW MUCH DOES THE LOT COST?

   a) $80,000 b) $155,000 c) $130,000 d) $105,000 e) $180,000

SOLVE FOR THE INDICATED VARIABLE

10. $v = \ell wh$, for w

    a) $\frac{\ell h}{v}$ b) $v - \ell h$ c) $\frac{v}{\ell h}$ d) $\frac{vh}{\ell}$ e) $\frac{v\ell}{h}$

11. $A = 1/2\ bh$, for b

    a) $\frac{2A}{h}$ b) $\frac{A-h}{2}$ c) $\frac{A}{2h}$ d) $\frac{2h}{A}$ e) $2A - h$

12. $P = 2(L + W)$, FOR W

a) $\frac{P}{2L}$ b) $2P - L$ c) $\frac{2P}{L}$ d) $P - 2L$ e) $\frac{P}{2} - L$

13. $V = \frac{2}{3} PR^2h$, FOR R^2

a) $V - \frac{2}{3}Ph$ b) $\frac{2PV}{3h}$ c) $\frac{2Ph}{3V}$ d) $\frac{3V}{2Ph}$ e) $3V - 2Ph$

14. $A = \frac{h}{2} (b + a)$, FOR b

a) $A - \frac{h}{2} - a$ b) $\frac{2A - ha}{h}$ c) $\frac{2A}{h + a}$ d) $A - h + 2a$ e) $a - A + 2h$

15. $a = p + prt$, FOR r

a) $a-p-pt$ b) $\frac{a-p}{pt}$ c) $\frac{a}{pt} - p$ d) $\frac{a}{p+pt}$ e) $\frac{p-a}{pt}$

16. $ax - b = c$, FOR x

a) $\frac{b+c}{a}$ b) $\frac{c-b}{a}$ c) $\frac{c}{a} + b$ d) $\frac{c}{a} - b$ e) $\frac{cb}{a}$

17. $abc - d = e$, FOR d

a) $e-abc$ b) $abc-e$ c) $\frac{e}{abc}$ d) $abce$ e) $\frac{abc}{e}$

18. $\frac{3xy}{z} = 10$, FOR x

a) $\frac{10z}{3y}$ b) $\frac{3y}{10z}$ c) $\frac{3z}{10y}$ d) $\frac{10y}{3z}$ e) $\frac{10yz}{3}$

19. $3bx + a = 9$, FOR x

a) $\frac{a-9}{3b}$ b) $9-(3b+a)$ c) $\frac{9-a}{3b}$ d) $\frac{9}{3b} - a$ e) $\frac{9-3bx}{a}$

20. $2x - 3y = 5$, FOR y

a) $\frac{5-2x}{3}$ b) $\frac{2x+5}{3}$ c) $(5-2x)+3$ d) $(2x-5)-3$ e) $\frac{2x-5}{3}$

3007 - Module 9

SIMPLIFY EACH EXPRESSION. EVALUATE WHEN POSSIBLE; WHEN NOT POSSIBLE, WRITE ANSWER WITH POSITIVE EXPONENTS ONLY.

1. $3^5 \cdot 3^3$

   a) 9^8 b) 9^{15} c) 3^8 d) 3^{15} e) 6^8

2. $2^5 \cdot 2^{-8}$

   a) $\frac{1}{2^{40}}$ b) $\frac{1}{2^{13}}$ c) -6 d) $\frac{1}{8}$ e) -8

3. $\frac{a^2}{a^{-5}}$

   a) a^7 b) a^3 c) $\frac{1}{a^3}$ d) $\frac{1}{a^7}$ e) a^{10}

4. $b^{10} \cdot b^{-10}$

   a) b^{100} b) 1 c) b^{20} d) $\frac{1}{b^{20}}$ e) 0

5. $\frac{y^{-4}}{y^{-9}}$

   a) y^{13} b) $\frac{1}{y^{13}}$ c) $\frac{1}{y^5}$ d) y^5 e) y^{36}

6. $(x^{-3})^4$

   a) $\frac{1}{x^7}$ b) $\frac{1}{x}$ c) x d) x^7 e) $\frac{1}{x^{12}}$

7. $(2x^5y^{-3})^4$

   a) $2x^{20}y^{12}$ b) $\frac{2x^{20}}{y^{12}}$ c) $\frac{2x^9}{y^7}$ d) $\frac{16x^{20}}{y^{12}}$ e) $16x^9y^7$

8. $(5^2)^{-3}$

   a) $\frac{1}{5}$ b) 5 c) 5^5 d) 5^6 e) $\frac{1}{5^6}$

9. $\frac{(2x^2)(3x^4)}{6x^6}$

   a) 1 b) x^2 c) x^{12} d) x^{-2} e) $3x^0$

10. $\dfrac{10^8 \cdot 10^2}{(10^0)^2}$

a) 10^8 b) 10^{16} c) $\dfrac{10^{10}}{2}$ d) 10^{14} e) 10^{10}

11. $-(x^2)^5$

a) $-x^7$ b) x^{10} c) $-x^{10}$ d) $-x^{25}$ e) x^7

12. $(x^2y^{-2})^{-1}\,(x^3y^0)^2$

a) x^4y^2 b) x^5y^2 c) x^4y^{-2} d) x^3y^2 e) x^4y^3

13. $\dfrac{5^{-2}a^2b^3}{10^{-1}a^0b^{-2}}$

a) $\dfrac{2a^2b^5}{5}$ b) $\dfrac{a^2b^5}{5}$ c) $10a^2b^5$ d) $\dfrac{2ab^5}{5}$ e) $\dfrac{2a^3b^4}{5}$

14. $\left(\dfrac{3^{-1}x^{-1}y^3}{x^2y^{-1}}\right)^2$

a) $\dfrac{y^4}{9x^2}$ b) $\dfrac{y^8}{9x^6}$ c) $\dfrac{-6y^8}{x^6}$ d) $\dfrac{9y^8}{x^6}$ e) $\dfrac{-9y^4}{x^2}$

15. EXPRESS IN SCIENTIFIC NOTATION: 0.00078

a) 7.8×10^4 b) 7.8×10^3 c) 7.8×10^{-3} d) 7.8×10^{-4}

e) 7.8×10^{-5}

16. EXPRESS IN DECIMAL NOTATION: 1.01×10^6

a) 101,000 b) 0.000101 c) 0.00000101 d) 1,010,000 e) 101,000,000

17. EXPRESS IN DECIMAL NOTATION: 6.87×10^{-3}

a) 687 b) 6,870 c) 0.000687 d) 0.687 e) 0.00687

PERFORM THE INDICATED OPERATIONS AND EXPRESS YOUR ANSWER IN SCIENTIFIC NOTATION.

18. $\dfrac{2.6 \times 10^{12}}{1.3 \times 10^{10}}$

a) 2×10^2 b) 2×10^{-2} c) 20×10^1 d) 2.2×10^2 e) 20×10^2

19. (630,000) (0.03)

a) 1.89×10^{4} b) 1.89×10^{-2} c) 18.9×10^{3} d) 1.89×10^{2} e) 1.89×10^{3}

20. $\frac{36,000}{.0009}$

a) .4 b) 4×10^{-1} c) $.4 \times 10^{0}$ d) $.4 \times 10^{8}$ e) 4×10^{7}

3007 - Module 10

1. COMBINE LIKE TERMS AND ARRANGE IN DESCENDING POWERS OF x:

$x - 3x^3 + 2x^2 - 5x - 4x^2 + x^3 + 7$

a) $7 - 8x^3$ b) $-4x - 2x^3 - 2x^2 + 7$ c) $7 - 5x - 2x^2 - 2x^3$ d) $-8x^3 + 7$

e) $-2x^3 - 2x^2 - 4x + 7$

2. SIMPLIFY: $(2x^3 - 4) + (4x^2 + 8x) - (9x - 7)$

a) $2x^3+4x^2-x+3$ b) $2x^3+3x^2-11$ c) $2x^3+3x^2+3$ d) $2x^3+4x^2-x-11$

e) $2x^3+4x^2-17x-11$

3. SIMPLIFY: $(-3p^2 + 5p - 4) - (-4p^2 + 11p - 2)$

a) $-7p^2+16p-6$ b) $p^2+16p-6$ c) $-7p^2-6p-2$ d) p^2-6p-2 e) p^2-6p-6

4. ADD:
$$\begin{array}{r} 7x^2y - 3xy^2 + 4xy \\ \underline{-2x^2y - xy^2 + xy} \end{array}$$

a) $5x^2y+4xy^2+5xy$ b) $5x^4y^2-4x^2y^4+5x^2y^2$ c) $5x^2y-4xy^2+5xy$

d) $9x^2y-2xy^2+3xy$ e) $-14x^4y^2+3x^2y^4+4x^2y^2$

5. SUBTRACT:
$$\begin{array}{r} 7ab - 3ac + 5bc \\ \underline{13ab - 15ac - 8bc} \end{array}$$

a) $-6ab+12ac+13bc$ b) $20ab-18ac-3bc$ c) $20a^2b^2-18a^2c^2-3b^2c^2$

d) $20ab-12ac-13bc$ e) $6a^2b^2-12a^2c^2+3b^2c^2$

6. SUBTRACT: $(2x^2 - 4x + 3)$ FROM $(5x^2 - 2x + 1)$

a) $3x^2+2x-2$ b) $-3x^2-2x+2$ c) $7x^2-6x+4$ d) $3x^2-6x+4$ e) $7x^2+6x+4$

7. SIMPLIFY: $(\frac{3}{2}y^3 - \frac{1}{2}y^2 + 0.3) - (\frac{1}{2}y^3 + \frac{1}{2}y^2 - \frac{4}{3}y + 0.2)$

a) $y^3-y^2+\frac{4}{3}y+0.5$ b) $y^3-\frac{4}{3}y+0.5$ c) $y^3-y^2+\frac{4}{3}y+0.1$ d) $2y^3-y^2-\frac{4}{3}y+0.1$

e) $2y^3-\frac{4}{3}y+0.1$

REMOVE THE SYMBOLS OF GROUPING AND SIMPLIFY:

8. $6x + 2(x - 3) - (4x + 7)$

a) $4x+4$ b) $4x-13$ c) $12x+1$ d) $12x-13$ e) $12x+4$

9. $2(3x - 2y) - [4x - 2(2x - 3y)]$

a) $6x-12y$ b) $6x-8y$ c) $6x-10y$ d) $-2x-10y$ e) $-2x-2y$

10. $[8(3x - 2) + 9] + [7(x + 4) + 6x]$

a) $16x+35$ b) $31x+11$ c) $37x-7$ d) $37x+21$ e) $30x+12$

FIND THE PRODUCT AND SIMPLIFY, IF POSSIBLE.

11. $(-5xy^7z^4)(18x^3y^2z^8)$

a) $90x^4y^9x^{12}$ b) $-90x^4y^9z^{12}$ c) $23x^3y^{14}z^{32}$ d) $-13x^4y^9z^{12}$ e) $-90x^3y^{14}z^{32}$

12. $4a^3b(2a^2 - 3ab + 5b^2)$

a) $6a^5b-7a^4b^2+9a^3b^3$ b) $8a^6b-12a^3b+9a^3b^2$ c) $8a^5b-12a^3b+20a^3b^3$

d) $8a^5b-12a^4b^2+20a^3b^3$ e) $6a^6b-12a^4b^2+20a^3b^3$

13. $x(2x^3 + 4x - 5) - 4(2x^3 + 4x - 5)$

a) $2x^4-8x^3+4x^2-21x+20$ b) $-13x+20$ c) $-23x+20$ d) $-6x^3-12x+15$

e) $2x^4-8x^3+11x+20$

14. $(x - 4)(2x^3 + 4x - 5)$

a) $2x^4-8x^3+4x^2-21x+20$ b) $-13x+20$ c) $-23x + 20$ d) $-6x^3-12x+15$

e) $2x^4-8x^3+11x+20$

15. $(-3x^2y + xy^2 - 4y^3)(-2xy)$

a) $-6x^3y^2-2x^2y^3-8xy^4$ b) $6x^3y^2+2xy^3+8xy^3$ c) $-6x^3y^2-2xy^3+8y^4$

d) $6x^3y^2-2x^2y^3+8xy^4$ e) $6x^3y^2-2x^2y^3-8x^2y^3$

16. $5x(3x - 4) + 2(3x - 4)$

a) $15x^2-26x-8$ b) $15x^2+14x-8$ c) $15x^2+26x+8$ d) $15x^2-23x-12$

e) $15x^2-14x-8$

17. $(y - 7)(y^2 + 7y + 49)$

a) y^3-343 b) y^3+343 c) y^3+14y^2-343 d) $y^3+98y-343$ e) y^3-14y^2-343

18. $4x\ (3x^2 + y^2) + 3y\ (3x^2 + y^2)$

a) $12x^3+3y^3$ b) $12x^3+9x^2y+4xy^2+3y^3$ c) $12x^3+13xy^2+3y^3$ d) $12x^3+6x^2y+5xy^2+3y^2$

e) $12x^3+13x^2y+3y^3$

19. $-2\ (y - b)\ (y + b)$

a) $4y^2 - b^2$ b) $-2y^2 - 2b^2$ c) $- 2y^2 + 4by + 2b^2$ c) $2b^2 - 2y^2$

e) $4b^2 - 4y^2$

20. $5x\ (2y - 7) - 3\ (2y - 7)$

a) $10x^2-41x+21$ b) $10xy-6y-35x+21$ c) $-31xy+21$ d) $-31xy-21$

e) $10xy-6y+21$

3007 - Module 11

USE THE FOIL METHOD FOR THESE PROBLEMS.

1. $(x - 8)(x + 8)$

   a) x^2+16 b) x^2-16 c) $x^2-16x+64$ d) $x^2+16x+64$ e) x^2-64

2. $(3x - 7)^2$

   a) $9x^2+49$ b) $9x^2-49$ c) $9x^2-42x+49$ d) $9x^2-21x+49$ e) $9x^2-21x-49$

3. $(4y - 5)(4y + 5)$

   a) $16y^2-40y-25$ b) $16y^2-20y-25$ c) $16y^2-40y+25$ d) $16y^2-25$ e) $16y^2+25$

4. $(a + 2b)^2$

   a) a^2+4b^2 b) $a^2+2ab+4b^2$ c) $a^2+4ab+4b^2$ d) a^2+2b^2 e) $a^2+4ab+2b^2$

5. $(2x + 9)(x - 2)$

   a) $2x^2+5x-18$ b) $2x^2+11x-18$ c) $2x^2+7x+18$ d) $2x^2+11x+18$ e) $2x^2-13x-18$

6. $(x - 0.5)(x - .25)$

   a) $x^2+.125$ b) $x^2-.75x+.125$ c) $x^2-.75x+1.25$ d) $x^2-.125$

   e) $x^2-0.3x+.125$

7. $(3b + 2)(2b - 5)$

   a) $5b^2-12b-10$ b) $5b^2-11b-3$ c) $6b^2-4b-3$ d) $6b^2-11b+10$ e) $6b^2-11b-10$

8. $(2m^2 - n^3)(2m^2 + n^3)$

   a) $4m^2-n^3$ b) $4m^4-n^6$ c) $4m^2+n^3$ d) $4m^4+n^6$ e) $4m^4-4m^2n^3-n^6$

9. $(-2d + 3c)(2d + 3c)$

   a) $9c^2+4d^2$ b) $9c^2+6cd-4d^2$ c) $9c^2-6cd-4d^2$ d) $9c^2-4d^2$ e) $9c^2-12cd-4d^2$

10. $(4r - \frac{1}{2})^2$

    a) $16r^2-8r+1$ b) $16r^2-4r+\frac{1}{4}$ c) $16r^2-8r-1$ d) $16r^2-4r-1$ e) $16r^2-4r-\frac{1}{4}$

11. $(x^3 + y)(x^3 - y)$

    a) x^9-y^2 b) x^9+y^2 c) $x^6-2x^3y-y^2$ d) x^6-y^2 e) x^6+y^2

12. $(a + b)(a - b)(a^2 + b^2)$

a) a^4-b^4 b) $a^4+2a^2b^2-b^4$ c) a^4+b^4 d) $a^4-2a^2b^2+b^4$ e) $a^4-4a^2b^2-b^4$

13. $(a - 2)(b + 4)$

a) $ab+2ab-8$ b) a^2+2a-8 c) $ab-8$ d) $ab-6ab-8$ e) $ab+4a-2b-8$

14. $(2x - 3y)(z - 1)$

a) $2xz+3y$ b) $2x+3y$ c) $2xz-2x-3yz+3y$ d) $2xz-3yz+3y$ e) $-xz+yz$

15. $(3 + x^3)^2$

a) $9+x^6$ b) $9+6x^3+x^6$ c) $9+x^5$ d) $9+3x^3+x^6$ e) $9+6x^3+x^5$

16. $(3ab - 2)^2$

a) $9a^2b^2+4$ b) $9a^2b^2-6ab+4$ c) $9a^2b^2-12ab+4$ d) $9a^2b^2-4$ e) $9a^2b^2-12ab-4$

17. $(3x + 4y)(3x - 4y)$

a) $9x^2+16y^2$ b) $9x^2-16y^2$ c) $9x^2+24xy-16y^2$ d) $9x^2+12xy-16y^2$

e) $9x^2-24xy-16y^2$

18. $(3y - 2)(6y - 1)$

a) $18y^2+2$ b) $18y^2-9y+2$ c) $18y^2-2$ d) $18y^2-15y+2$ e) $18y^2-15y^2-2$

19. $(p + 5q)(2p - 3q)$

a) $2p^2+10pq-15q^2$ b) $2p^2+7pq+15q^2$ c) $2p^2+7p-15$ d) $2p^2+7pq-15q^2$

e) $2p^2-15q^2$

20. $(x + 3)(x^2 + 3)$

a) x^3+9 b) x^3+3x^2+3x+9 c) x^3+3x^2+9 d) x^3+6x+9 e) x^3+6x^2+9

3007 - Module 12

DIVIDE

1. $\dfrac{30x^8 - 15x^6 + 40x^4}{5x^4}$

a) $6x^2+3x^{\frac{3}{2}}+8$ b) $6x^4-3x^2+8$ c) $6x^2-3x^{\frac{3}{2}}+8$ d) $6x^4+3x^2+8$ e) $3x^2+8$

2. $\dfrac{4x^3 - 7x^2 + 6x}{-2x}$

a) $2x^2-5x+4$ b) $-2x^2+\frac{7}{2}x-3x$ c) $-2x^2+7x-3$ d) $-2x^2+\frac{7}{2}x-3$ e) $-2x^2+7x-3x$

3. $\dfrac{13x^3y^2 - 26x^2y^3 - 39x^2y^2}{13x^2y^2}$

a) $x-2y+3$ b) $x-26x^2y^3-39x^2y^2$ c) $x-2x^2y^3-3x^2y^2$ d) $x-2y-3$

e) $13x^3y^2-26x^2y^3-3$

4. $(-15a^4 + 12a^3 - 18a^2) \div -3a^2$

a) $5a^2+12a^3-18a^2$ b) $5a-4a-6$ c) $5a^2+4a-6$ d) $-5a^2+4a-6$ e) $5a^2-4a+6$

5. $(9y^4 - 18y^3 + 27y^2) \div 9y$

a) y^3-2y^2+3y b) y^3-y^2+y c) y^3-2y+3 d) y^3-9y^2+18y e) y^3+2y^2+3y

6. $24a^3 + 28a^2 - 20a \div 2a$

a) $12a^2+14a-10$ b) $12a^2-14a+10$ c) $24a^3+28a^2-10$ d) $24a^3+28a^2+10$

e) $12a^2+28a^2-20a$

7. $\dfrac{15c^3d^2 - 9c^2d^3 + 5cd}{5cd^2}$

a) $3c^2-9cd+\frac{1}{d}$ b) $3c^2-\frac{9}{5}cd+\frac{1}{d}$ c) $3c^2-cd+\frac{1}{d}$ d) $3c^2-\frac{9}{5}cd+d$ e) $3c^2+\frac{9}{5}cd+d$

8. $(x^2 - 4x - 45) \div (x + 5)$

a) $x+1-\frac{45}{x+5}$ b) $x+9$ c) $x-9$ d) $x+1-\frac{50}{x+5}$ e) $x-9-\frac{90}{x+5}$

9. $(6x^2 - 17x + 5) \div (3x - 1)$

a) 2x+2 b) 2x-6,R1 c) 2x-5 d) 2x-19 e) $2x-\frac{19}{3}$, R $\frac{34}{3}$

10. $x - 2\overline{\left| x^2 + 3x - 5 \right.}$

a) x+5 b) x-5 c) $x+1-\frac{3}{x-2}$ d) $x+5+\frac{5}{x-2}$ e) $x+1+\frac{3}{x-2}$

11. $(4x^3 - 10x^2 - 11x + 16) \div (x - 4)$

a) $4x^2-10x^2-11x-4$ b) $4x^2-26x-115x$,R460 c) $4x^2+6x-35$,R140

d) $4x^2+6x+13$,R-36 e) $4x^2+6x+13$,R68

12. $(2x^3 + 7x^2 - 4) \div (x - 4)$

a) $2x^2+15x+60$,R236 b) $2x^2+7x^2+1$ c) $2x^2+15x+60$,R-244 d) $2x^2-x-4$,R-16

e) $2x^2-x+4$,R16

13. $(x^3 + 8) \div x + 2$

a) x^2+4 b) x^2-2x+4 c) x^2+2x-4 d) x^2-2x+4,R16 e) x^2-2x-4

14. $(x^3 + 9x^2 - 5) \div (x - 1)$

a) $x^2+10x+10$,R5 b) x^2+8x-8,R-18 c) x^2+8x+8,R-2 d) $x^2+10x-1$,R-11

e) $x^2+10x-1$,R-9

15. $(9y^4 + 14y^2 - 8) \div (3y + 2)$

a) $3y^3+2y^2+6y-4$ b) $3y^3-2y^2+6y-4$ c) $3y^3+4y$ d) $3y^3+4y$,R-16

e) $3y^3-2y^2-6y-4$

16. $(10y^3 + 6y^2 - 9y + 10) \div (5y - 2)$

a) $2y^2-2y-1$,R-8 b) $2y^2+2y+1$,R12 c) $2y^2-2y-1$,R8 d) $2y^2+2y-1$,R8

e) $2y^2+2y-1$,R12

17. $(t^2 - 7t - 9) \div (t - 3)$

a) t-3 b) t-4 c) t-10,R-39 d) t-4,R-21 e) t-4,R3

18. $(a^2 - 8a - 16) \div (a - 4)$

a) $a-12+\frac{32}{a-4}$ b) $a-4$ c) $a+4$ d) $a+12+\frac{64}{a-4}$ e) $a-4-\frac{32}{a-4}$

19. $(3x^3 + 7x^2 - 5) \div (x^2 - 2)$

a) $3x+1, R-3$ b) $3x+7x^2+\frac{5}{2}$ c) $3x+7, R-6x+9$ d) $3x+7, R20x-5$ e) $3x+7, R6x+9$

20. $(x^3 - 5x^2 + 2x + 8) \div (x - 2)$

a) $x^2-7x+12, R32$ b) x^2-3x-4 c) $x^2-7x+16, R-24$ d) $x^2-3x+8, R-8$

e) $x^2-3x-4, R16$